10.22034/3.7.6 *Revitalization School*, *3*(7), 56-65, 2025

Original Research Article

An Analytical Study on the Historical Transformation of the River's Role in the Formation of Dezful's City Center*

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ARTICLE INFO

Received: 17 April 2025
Revised: 03 June 2025
Accepted: 11 August 2025
Online available: 23 August 2025

Keywords
City center
Dez river
Dezful
Urban transformation

ABSTRACT

Throughout the history of urban development, rivers have served as fundamental natural elements that play a crucial role in the formation, stabilization, and expansion of urban centers. Dezful, as a river-based city, has continuously evolved under the influence of the Dez River. This study employed a descriptive–analytical method and a historical–spatial approach to investigate the relationship between the Dez River and the city center of Dezful across various historical periods, from the Sasanian era to the contemporary period. The findings reveal that during the Sasanian period, the river functioned as both a defensive and infrastructural element in the establishment of the city's initial nucleus. In the Islamic era, particularly with the expansion of the Qanats and Qomesh irrigation networks, the city center developed in direct connection with water resources and surrounding agricultural lands. From the Safavid to the Qajar periods, the focus on neighborhood networks structured around Qomesh systems and socially cohesive districts maintained a moderate level of connection between the city center and the river. However, during the Pahlavi and contemporary periods, the introduction of modern water-supply systems, the construction of new streets, the emergence of new urban centers, and shifts in the city's physical and functional orientation gradually diminished the river's role in shaping the identity of the city center to a minimal degree. At present, the river primarily functions as a natural edge and recreational landscape, while its structural and functional linkage with the city center has been disrupted. These transformations illustrate a profound shift in the formative and identity patterns of Dezful's urban core from a naturally dependent riverine structure to a human-constructed, detached urban framework.

** This article is extracted from the Research Project entitled "A placed-oriented Approach in the Spatial Planning of Khuzestan Province" which was conducted under supervision of Dr. "Seyed Amir Mansouri" by the research team of NAZAR Research Center in Khuzestan province in 2024.

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Introduction

An examination of the location and structure of most cities reveals that their formation often occurred along rivers and adjacent valleys, primarily to take advantage of available water resources (Bemanian, 2008, 2; Soltani et al., 2023, 71). River-based cities, as one of the earliest models of human civilization, have played a significant role in the historical development of human societies. Rivers, as vital sources of water, attracted populations and led to the establishment of the earliest settlements along their banks. Consequently, they not only fulfilled the essential needs of early communities but also contributed to the emergence of the notion of a "center" within such urban structures.

The complex and multidimensional relationship between a city and its river jointly shaping the form, function, and identity of these urban environments has long been a central theme in urban studies. Historical evaluations of rivers' values have primarily focused on the human–water relationship, which has continuously evolved under the influence of shifting urban design and planning paradigms over the centuries (Soltani et al., 2023, 71). Therefore, in cities such as Dezful, where rivers have played a vital role in their historical formation and development, examining this relationship is of particular importance.

Dezful is one of Iran's historic cities whose evolution is deeply intertwined with the Dez River. From its earliest phases, the city developed along this river and has experienced diverse patterns of growth throughout its history, shaped by its natural characteristics and geographical position. Among the key questions explored in this study is the historical relationship between the Dez River and the city center across different periods. This research seeks to address how the Dez River has influenced the formation and transformation of Dezful's urban core in each historical era.

The study is grounded in the premise that the role of the river has varied across time according to social, economic, and political changes. These shifts have not only affected the spatial location of the city center and its degree of interaction with the river, but have also influenced the evolution of neighborhoods and the broader spatial organization of the city. Specifically, by examining the historiography of Dezful's urban development, this research aims to clarify how the city center emerged and evolved in relation to the Dez River throughout different historical phases.

This research holds significance in two main respects. First, studying the urban transformations of Dezful can provide analytical models applicable to other riverine cities (river-cities) in Iran under similar conditions. Second, given the extensive physical and social changes in Dezful's urban fabric during the modern era, understanding these transformations can contribute substantially to addressing contemporary challenges concerning the relationship between rivers and urban centers.

Literature Review

Research conducted on the urban core of Dezful has been largely confined to upper-level urban planning documents, such as the Comprehensive Plan (2009) and the Detailed Plan (1983). These plans primarily focus on defining and describing the historical boundaries of the city and identifying the initial nuclei that contributed to its formation, while also providing statistical data on its physical characteristics in the present era. Other studies in this field have mostly examined the bazaar as a key component of the city center.

Masoudi Nejad (2022), in a study entitled "A Comparative Study of Social and Retail Bazaars: Investigating the Historical Bazaars of Dezful and Shushtar as Retail Bazaars" analyzed the physical features of the bazaar and the urban structure, concluding that in Dezful, the spatial structure of the city and its bazaar do not entirely coincide meaning that the bazaar does not serve as the city's main spine. Similarly, Taban and Pourjafar (2009), in their research titled "Identifying factors recognition of Dezful historical fabric and their usage in city development," reviewed the city's historical development and conducted a critique of modernist expansion, emphasizing the resulting decline in the sense of place and belonging within the city center.

A review of the existing literature indicates that most studies on Dezful have been limited to analyses of the physical structure of the historical fabric and central urban elements, without providing a systematic examination of the river's role in the formation, continuity, and transformation of the city center. Although these studies implicitly acknowledge the geographical significance of the city's location, they fail to address the reciprocal interaction between the river and the city center, either spatially or functionally.

This study, through a historical–analytical approach, seeks to fill this gap by reinterpreting the spatial genealogy of Dezful's urban core in relation to the river. It aims to demonstrate how a dynamic and evolving relationship between the natural setting and the urban structure of Dezful has shaped the city's development throughout history.

Theoretical Foundations

• The center as the generative core of the city

The urban center, or nucleus, represents the point of origin from which the city gradually emerges through interactive processes involving multiple spatial, social, and environmental components. The city center is not necessarily a geographical midpoint, but rather the historical and existential core, the birthplace of the city, the beating heart where people gather, interact with one another, and engage with their environment (Kiani, 2018).

In the Islamic era, Iranian cities were generally divided into three main parts: the citadel (Kuhandej), the Sharestan (the main urban area), and the Rabaz (the suburban zone). In this typology, the city center often coincided with the Kuhandej. Within the Islamic city

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model, in addition to the Jame Mosque, the bazaar was also depicted as the vital center and the living heart of the city (Irandoost et al., 2016, 87). Thus, the "center" is the most significant component of the spatial organization, upon which the primary perception of the urban landscape depends. Its role is such that the degree of dependence of various urban elements upon it can be easily recognized. At every scale, the city center is a locus for the manifestation and experience of civic life across physical, spatial, and temporal dimensions (Habibi & Maghsoudi, 2007, 12; Zarei & Najafi Terojeny, 2019, 118). In essence, the city center can be understood as a landscape, a composite of tangible and intangible dimensions. The tangible dimension is reflected in its physical form and activity layers, while the intangible dimension emerges from collective memory, sense of place, urban identity, and symbolic meanings. The essence and identity of the city are revealed within its center, which is perceived by citizens as the defining emblem of the city itself (Hejazi et al., 2020, 13).

It is noteworthy that the concept of the "city center" does not possess a universal meaning or function across all geographies and climates. It is instead shaped by environmental conditions and the livelihood patterns of each region. In desert cities, the center typically forms around limited water sources and essential life-supporting elements, serving primarily subsistence and defensive purposes. Conversely, in port or riverine cities, the urban center is naturally defined in relation to the water body and the associated socio-economic activities. In such cities, the center initially corresponds with the physical extent of the settlement, and the city's spatial organization develops along the axis of its water connection. As the city expands and new development interventions occur, the center gradually distances itself from the riverfront, giving rise to peripheral neighborhoods yet a spatial and functional relationship with the water axis often persists.

• River–City: A Complex and Multifunctional Concept

The concept of the River–City refers to a type of urban settlement in which the river plays a central and multifunctional role in urban design, development, and organization. Such cities go beyond a merely aesthetic view of the river, perceiving it instead as a fundamental element that contributes to the city's environmental, economic, social, and cultural sustainability. Rivers constitute the primary sites of urban development in most regions. (Soltani et al. 2023, 71). They not only provide essential water resources but also function as key determinants in shaping urban identity, transportation networks, public spaces, agriculture, and the overall pattern of human–nature interactions (Breen & Rigby, 1996).

In these cities, rivers operate as influential factors in shaping both the spatial and social structures of the urban environment. They are not only vital sources of water for living and agriculture but also serve as channels of communication and commerce, and in some cases, as natural elements of defense and protection for the city. Rivers frequently act as natural boundaries for urban growth and expansion, yet they simultaneously retain critical importance as gateways to environmental and economic resources.

• Structural Characteristics of Rivers in Their Interaction with Cities

The proximity of rivers to urban areas profoundly influences the nature of the relationship between the city and the river, imparting distinctive structural characteristics to both. This dual relationship is dynamic and may evolve over time in response to regional ecological conditions, as well as social, economic, and environmental factors that shape the city's mode of interaction with the river.

- The River as a Defensive Structure of the City

An examination of Iran's historical geography indicates that large rivers have historically functioned as natural obstacles that slowed or prevented invasions. (Kamran, 2021, 769). In many historical cities, rivers functioned as natural fortifications against enemy attacks, and in some cases, city gates were reinforced by defensive structures such as fortresses and city walls positioned along the riverbanks.

- The River as an Organizer of Agricultural Systems

Rivers, as primary sources of surface water, play a vital role in supplying water for agriculture, drinking, and industry (Kardan Moghaddam et al., 2015, 2). In many river cities, agricultural lands developed in proximity to rivers, enabling urban communities to secure their food supply. The fertile plains of Khuzestan Province, for instance, have long been recognized as one of Iran's major agricultural hubs due to their abundant water resources and suitability for farming (Hosseini Zare et al., 2016, 122).

- The River as a Commercial and Transport Axis of the City

Rivers have historically played a key role as channels for trade and transportation. In many river cities, rivers not only provided essential water resources but also served as conduits for the movement of goods and commercial exchange. This role is particularly evident in Iranian cities such as Ahvaz, where, during the mid-Qajar period, an urban core known as Bandar Naseri (Naseri Port) was established to facilitate river-based commerce (Chizfahm Daneshmandian et al., 2025).

- The River as a Recreational and Landscape Framework

Today, rivers within cities serve not only as sources of water for drinking, agriculture, and industry but also as crucial elements in enlivening and revitalizing urban environments (Barati et al., 2013, 14). In many cities, rivers have been transformed into spaces for recreation and tourism (Abbaszadeh Soormi et al., 2021, 110). Public spaces and parks are often developed along riverbanks, providing venues for social and cultural interaction. This approach is particularly evident in the city of Dezful, where the riverside has evolved into an active recreational landscape (Rastegari, 2010, 57).

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- The river as a reinforcer of urban industrial structure

In certain industrial cities, rivers function as infrastructural elements supporting industrial facilities and water management systems. Many such cities have constructed installations along rivers for flow regulation, hydroelectric power generation, or the transportation of industrial raw materials. The Shushtar Hydraulic Structures stand as a remarkable example of ancient water infrastructure designed to harness hydraulic energy for industrial purposes.

The Relationship Between the River and the Core of River-Cities

• Formation of the urban core influenced by the river

According to the general definition of an urban core, it represents the first tangible manifestation of humanity's attempt to achieve its goals in establishing a settled structure. In both Iranian and non-Iranian contexts, the formation of city centers has often been clearly influenced by the presence and effects of rivers. As defensive elements, sources of life, communication routes, and ecological assets, rivers have provided the foundation for the earliest human activities and collective settlements, which gradually evolved into urban centers. Examples include the Iranian cities of Qazvin, Dezful, Shushtar, Qom, and Khorramabad, as well as international cases such as London, Florence, and Paris (Mazaherian et al., 2021).

From a morphological perspective, the river transforms the spatial form of the city. At times, the city stretches along its course; at other times, it expands perpendicular to it. In some cases, urban corridors are opened toward the river, while in others, a strong and continuous edge is formed along its banks. In all cases, the river landscape modifies the city's form and influences its spatial structure.

Studies have shown that river-oriented urban design can lead to the creation of high-quality public spaces, where the continuity between people, nature, and society is maintained and the sense of place is reinforced (Safdarnejad et al., 2022). In many historical Iranian cities, the bazaar, mosque, and main square—the key components of the city center—were commonly established near the river. This spatial and functional relationship enhanced the significance and vitality of the urban core (Pourjafar et al., 2014).

From a symbolic and semantic point of view, the river-influenced urban center, beyond concentrating political, social, and economic activities, represents the bond between humans, nature, and local history a connection frequently highlighted in travelogues and historical texts. Within this framework, the river functions not only as a natural element but also as a cultural and social agent, anchoring the city center as a condensed reflection of the whole city and its collective events (Saberi, 2020).

• Formation of the urban core independent of the river

In contrast to the previous pattern, in this case, the city center as the focal point of urban activities—may have developed based on other factors such as land transportation routes, administrative centers, or urban development policies, while the river has either been marginalized or assumed a secondary, detached role from the core. In some instances, over time and with the city's spatial expansion, the river has gradually been reabsorbed into the urban fabric and reintegrated as part of the city (Mazaherian et al., 2022). Examples of such cities include Gorgan, Sari, and Lahijan.

On the other hand, with the advent of modern transformations, in many cases, rivers have lost their functional and spatial significance within cities. This situation typically occurs in cities where rivers due to environmental issues (such as pollution or flooding), course diversion, or industrial expansion have become detached from the urban core, resulting in the disruption of both physical and functional relationships between the two (Saberi, 2020). Under such conditions, the urban center tends to deviate from its organic and historical structure, adopting new urban models based on modern street networks and transportation systems, in which the river no longer plays a defining role (Yavari et al., 2016). The separation of the river from the urban core leads to a decline in the quality of riverside urban spaces, the loss of ecological and social opportunities, and a weakening of the sense of place. Moreover, the river may come to act as a barrier within the city's spatial structure, disrupting the physical and social continuity of the center (Safdarnejad et al., 2022). This trend has been observed in many cities across Iran and the world, where rapid urbanization and the introduction of modern transportation technologies have caused the city center to drift away from the river, transforming it into an isolated or even obstructive element within the urban fabric.

In summary, the relationship between the river and the urban core can be classified into two principal patterns (Table 1):

1. The continuous or river-oriented model, in which the city center forms along the watercourse, and the social, economic, and spatial life of the city is deeply interwoven with the river; and
2. The discontinuous or river-independent model, in which the urban core is organized around land-based routes, administrative structures, or modern developments, leading the river to gradually withdraw from the urban framework.

This distinction highlights that in riverine cities, the meaning and structure of the "center" are strongly influenced by the presence and function of the river, which simultaneously defines the city's physical framework and historical memory. Therefore, in the analysis of Dezful, identifying how this transition from continuity to discontinuity occurs is key to understanding the transformations of the city's spatial organization and cultural landscape.

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Table 1. Patterns of interaction between the city center and the river.

Features/ Components	The river-oriented model (the center in relation to the river)	The river-independent model (center detached from the river)
Role of the River	The main factor in the formation of the center, determining the direction of city development	Peripheral natural element, secondary or decorative role
Development Pattern	Organic, connected to the natural environment	Planned or influenced by land transportation networks
Socio-Economic Function	Dependent on trade and water-based activities	Dependent on administrative, commercial, and modern services
Role in Urban Identity	The river is a symbol of the city's identity and collective memory	City center detached from the river, with a new physical identity
Spatial and Visual Link	The center is located at the shortest distance from the water area	Physical and visual separation between the center and the river

Study Area: Dezful

Dezful is located in the northern plains of Khuzestan Province. According to accounts by Western explorers over the past half-century, including the German scholar Walther Hinz, the site of the earliest expansive Elamite empire was situated in what is now Dezful (Badlanzadeh & Aghamohammadi, 2011). The name Dezful is derived from the Persian term Dezpol, which refers to a bridge constructed during the reign of Shapur I of the Sassanian dynasty. Henry Field, in his book on Iranian ethnography, notes that Dezful is located on the left bank of the Dez River and is an elevated city with an irregular topography; along the riverbank, the elevation drops to approximately 100 feet across a series of rocky formations.

Examining the Evolution of the Relationship Between the City Center and the River

Based on historical documents and field observations conducted by the authors, the evolution of Dezful's city center and its interaction with the river as one of the city's most significant natural and strategic elements can be categorized into five distinct developmental phases. Throughout these phases, the position and role of the city center, as well as the factors shaping it, have changed, and correspondingly, the function and significance of the river within the city have also transformed. The following sections provide a detailed discussion of these developments.

• Phase one: the initial urban core adjacent to the river

The first urban nucleus of Dezful developed alongside the Sassanian bridge at the city's highest point, adjacent to the river. This location enabled oversight of the bridge and control over the crossing route, while a small settlement for the bridge and fortress personnel emerged nearby (Taban & Pourjafar, 2009; Masoudinejad, 2022). Historical investigations indicate that the site selection for this initial core was influenced both by geological characteristics and strategic considerations: it was protected from river flooding while simultaneously serving a defensive function and asserting control over the surrounding plains and communication routes (Ibn Hawqal, 1987; Rawlinson, 1840/1983; Zalaghi et al., 2024).

Based on this evidence, the city center of Dezful during this period can be classified as an example of a "river-oriented core", where the formation, spatial organization, and identity of the urban center were fully shaped by the presence and role of the river (Fig. 1). At this stage, the river functioned as a defensive element, a determinant of urban expansion, and a symbol of urban identity, transforming the city center into a living nucleus that monitored both its natural and historical context. This pattern exemplifies the organic relationship between the urban core and the river in riverine cities—a relationship that, with subsequent modern developments, could later shift toward disconnection from the river.

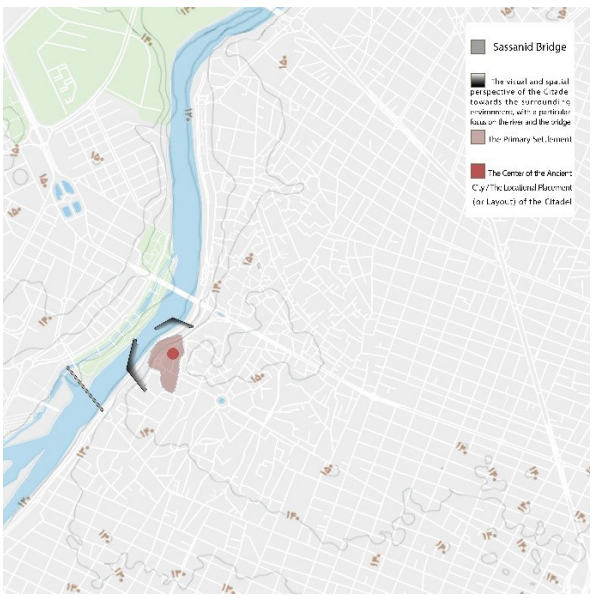


Fig. 1. Phase One – The Relationship between Dezful's City Center and the Dez River.

• Phase two: the river as an organizer of agricultural systems

During the Sassanian period, following Shapur I's victory over the Roman army which resulted in the capture of a large number of Roman soldiers remarkable advancements in hydrological engineering emerged in the region. By combining Iranian and Roman hydraulic engineering knowledge, three extensive irrigation systems were established around Dezful, Shushtar, and Karkheh. In fact, urbanization in the northern Khuzestan plains entered a new phase, driven by a Sassanian agricultural revolution supported by sophisticated irrigation engineering.

Consequently, the city of Gundeshapur was founded to the east of Dezful, and the cultivation of fertile lands

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between Dezful and Gundeshapur generated significant economic benefits (Zalaghi et al., 2024, 188). The Dezful Qomesh included Shahabad, Siyah Mansur, Bonvar Shami, Hajioon, and Momenoon, among which the Hajioon and Momenoon Qomesh channels ran directly beneath the urban fabric (Mortazavi, Partovi Deilami, 2012).

At this stage of development, the dependence of urban life in Dezful and regional agriculture on river water becomes fully evident (Fig. 2), even though it results in a certain distance between the city center and the river. This pattern of reliance continued into the Islamic periods, maintaining the river's role as a fundamental natural and economic backbone of the region.

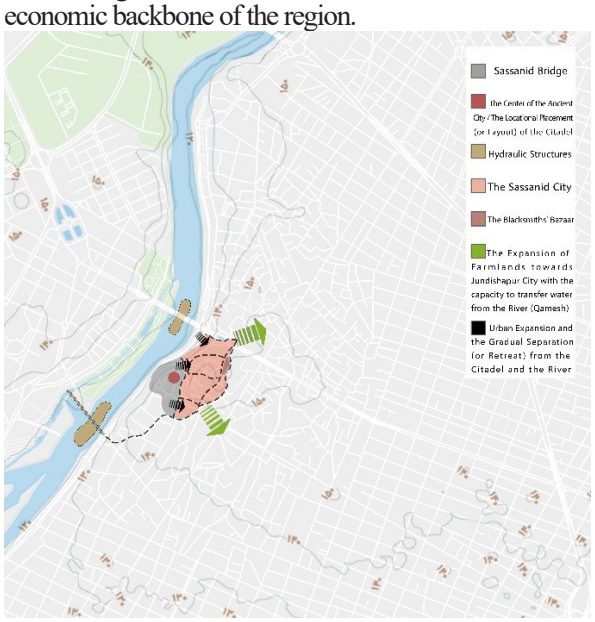


Fig. 2. Phase Two – The Relationship between Dezful's City Center and the Dez River.

• Phase three: The urban core based on the spatial organization of the islamic city

Following the Arab conquest, Shush and Gundeshapur gradually declined, and by the 5th century AH, the populations of these two cities migrated to Dezful—a military city offering greater security until Gundeshapur was completely abandoned (Rahimieh & Roboubi, 1974; Taban & Pourjafar, 2008). During this period, the spatial structure of the city and its core was organized according to the principles of the Islamic city.

The Jameh Mosque, whose earliest sections date back to the 1st century AH (Imam Ahwazi, 2004; Momeni & Soltani, 2018), was established in the Rabaz as a key element and the center of social and political activities in the Islamic city, granting the Rabaz greater prominence than the Sharestan (Ashouri, 2016). The bazaar also developed around the Jameh Mosque, located at a certain distance from the river, shaping the urban space based on religion and commerce. However, it lacked the social centrality of a true urban hub. Najm al-Mulk notes that Dezful did not have a prominent central bazaar; instead, there was a square where all commercial transactions took place. Consequently, despite its location between the mosque and the fortress and its extension toward the river, the bazaar did not assume the role of the city's social center, a function that was later transferred to multiple squares surrounding the city (Masoudi Nejad, 2016, 84).

Nevertheless, the city's expansion during the early Islamic centuries generally followed the direction of the bazaar and the river's alignment (Fig. 3). A crucial factor affecting the relationship between the city center and the river was the topography and elevation difference, which complicated access to the riverbank. Steep alleys, locally known as Bandar, sometimes even transformed into steps, connected the city to the river in certain areas (Masoudinejad, 2016). Thus, despite its proximity to the river, the city required a core with a spatial organization independent from the river, and the Islamic city structure provided this possibility. In this context, the river primarily played an environmental and climatic role for the city (Panah Yazdan & Jalili, 2015).

As a result, during this period, the direct influence of the river on the urban core gradually diminished, and

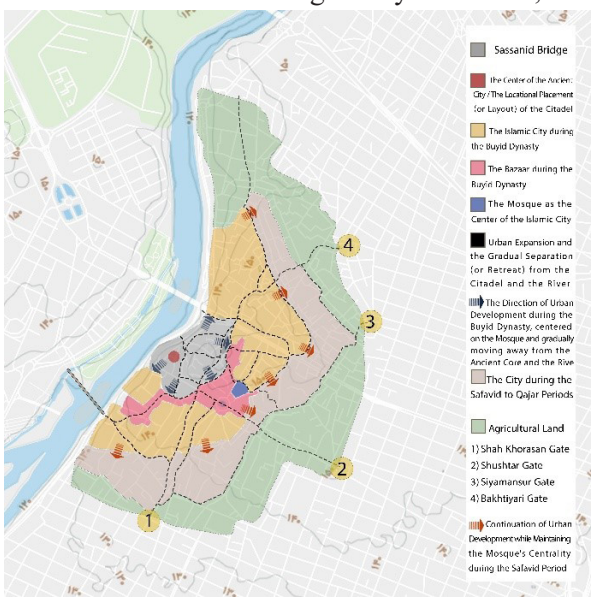


Fig. 3. Phase Three – The Relationship between Dezful's City Center and the Dez River during the Islamic Period.

the river became a service-oriented element that the city increasingly turned its back on.

• Phase four: qomesh as the organizer of neighborhood centers

In the subsequent period, with the city's expansion during the Seljuk, Timurid, and especially Safavid eras, the direct relationship between the river and the city center, as well as their mutual influence, diminished. During this time, as observed in other contemporary cities, urban services reached their peak and expanded extensively across all parts of the city (Taban & Pourjafar, 2008).

Consequently, the city's neighborhood structure was organized around neighborhood centers. The basis for urban expansion was twofold: the settlement of new residents in newly established neighborhoods and the robust network of Qomesh channels outside the Sharestan. Neighborhoods such as Karnasian,

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Sakian, and Lab Khandaq were established along the river and adjacent to the old water-transferring ditch, in alignment with the Qomesh network. The formation of new neighborhoods depended less on the city center and more on the development of neighborhoods in connection with water sources (Sar-be-Taq structures), with the direction of expansion largely determined by the Qomesh channels. Examples include Sar-be-Taq Aghamir and Choqabfon.

Thus, during this phase, the Dez River primarily functioned as a water supplier that controlled the emergence and location of new neighborhoods. Supporting agriculture, it shaped the local agricultural-commercial identity of the city. Consequently, with the decline of the river's commercial role and the strengthening of its agricultural function, the city center became physically fragmented, and its commercial identity weakened, shifting toward a localized, small-scale agricultural economy.

The presence of Imamzadeh shrines and religious leaders, along with the settlement of neighborhoods around them, also indicates the influence of religious thought and the congregation of followers in these areas. Among these, the establishment of the Seyyed Soltan Ali Roudband shrine near the Dez River highlights the river's importance in shaping the mental landscape and the development of population centers and the settlement of new residents (Fig. 4).

However, it appears that the river in Dezful did not serve a transportation or commercial function, and navigation by ships was not feasible. The absence of evidence for docks or landing areas, along with historical accounts, supports this claim. According to Lord Curzon, only a single ship ever passed through this river (Karimian Sardashti, 2017). Therefore, during this period, the river did not attract the city center or urban activities.

• Phase five: the new urban core based on modern urban Patterns

During both Pahlavi periods, inspired by Haussmann's urban plans in Paris, modern urban planning and street network principles, based on automobile-oriented structures, reshaped the appearance of many Iranian cities. Dezful was no exception. Following the city's expansion beyond its historic walls, the walls were completely removed, and new streets were constructed within the urban fabric (Panah Yazdan & Jalili, 2015).

Accordingly, with the construction of a new bridge parallel to the historic Sassanian bridge and the creation of a network of intersecting streets, the old urban fabric became fragmented, and a new city center emerged near a roundabout adjacent to the Jameh Mosque, competing with the former centers. Interestingly, the streets extending from this new center, despite being oriented toward the river, do not lead to the river bridges and are not aligned with the riverbank (Fig. 5).

Furthermore, with the implementation of modern municipal piping systems and the construction of dams along the Dez River, the role of the Qomesh channels diminished, and the connection between neighborhood centers and the river was significantly reduced. Additionally, in accordance with environmental and recreational considerations reflecting principles such as the Athens Charter and the contemporary need for urban recreational spaces the river's role shifted to primarily serving leisure and recreational purposes. Initiatives such as the creation of Ali Kalleh Riverside Park, the transformation of historic bridges and watermills into tourist sites, and other complementary land uses have influenced the interaction between the river and the urban environment. Although these spaces attract visitors, they do not function as urban centers and maintain a limited connection to the city's core.

Therefore, in the contemporary period, due to extensive

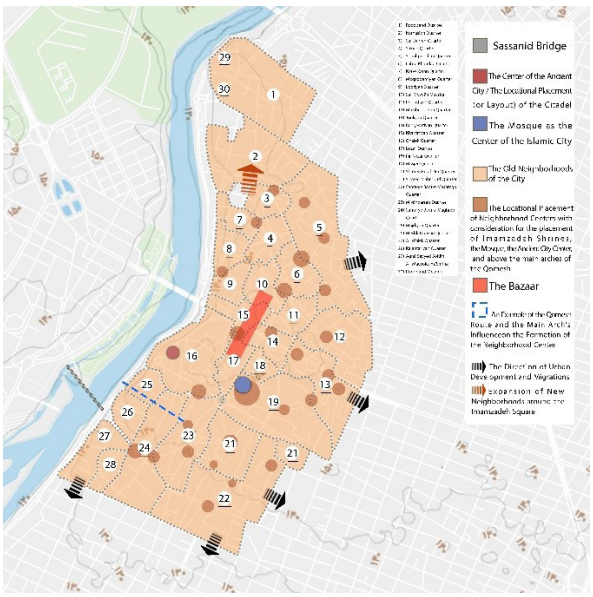


Fig. 4. Phase Four – The Relationship between Dezful's City Center and the Dez River: Neighborhood.

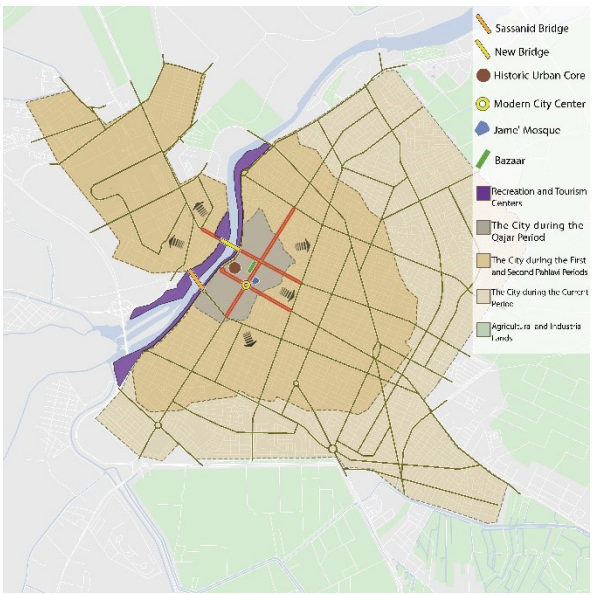


Fig. 5. Phase Five – The Relationship between Dezful's City Center and the Dez River: Modern City.

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morphological changes and the establishment of new water management systems, the influence of the river on the city's identity is largely restricted to its role as a physical edge and recreational element.

Discussion

A comparative analysis of the five historical phases in the evolution of Dezful (Table 1) demonstrates that the relationship between the Dez River and the city center has undergone continuous transformation throughout history, profoundly influencing the city's spatial organization, functionality, and identity. This relationship has followed a complex, multi-stage trajectory, ranging from fundamental integration during the city's early formation to morphological and functional separation in the contemporary era.

In the initial stages, the city center was highly dependent on the river, serving defensive purposes, providing water resources, and shaping the settlement pattern of the urban fabric. Gradually, particularly with the formation of the Islamic city structure, this physical and functional link weakened, and the city center became increasingly drawn inward into the urban fabric.

From the Seljuk to Safavid periods, the emergence of neighborhoods around water sources such as Sar-be-Taq channels, the increasing religious and social significance of new elements like sacred shrines, and population migrations further reduced the city center's direct dependence on the river, creating a greater spatial separation.

In the modern era, this disconnection was further amplified. Automobile-oriented Street layouts, the construction of new bridges and roundabouts without effective connection to the river, and the replacement of Qomesh channels with modern water supply networks all indicate a declining influence of the river in organizing the city center. While the river continues to provide water resources and serves as a recreational space, it has never regained its former role in shaping the identity of the urban core.

Conclusion

In riverine cities, the city center is not merely a geographical point but a composite concept, encompassing the physical, functional, symbolic, and social core that acts as the axis for the city's formation and development.

An examination of the five historical phases of Dezful indicates that in the initial stages, the city center emerged adjacent to the Dez River, which served as a defensive element, a source of water, and a symbol of urban identity, guiding both the spatial organization and development of the center. This organic link between the river and the center ensured the city's natural growth and spatial coherence, establishing the city center as the focal point of urban development and identity.

Over time, particularly from the Islamic period through the Qajar era, the city center continued to play a pivotal role; however, its spatial and functional relationship with the river gradually weakened. The Jameh Mosque and the bazaar became the core of urban activities, while the development of surrounding neighborhoods was increasingly influenced by Qomesh networks and local water resources rather than the river itself. In this phase, the city center remained a reference point for urban development, but its direct connection to the river diminished, and the urban fabric gradually became fragmented. This process reflects a transition from a river-oriented core to a semi-independent model, where the symbolic and functional ties to the river are limited.

During the Pahlavi and contemporary periods, modern urban transformations, including automobile-oriented street layouts, new bridges and roundabouts, and the replacement of traditional water networks, further reduced the river's role in shaping the city center. Both the historic and modern centers ceased to determine urban development, and the river primarily functioned as a recreational space and natural edge. This disconnection led to reduced spatial and functional cohesion, weakened historical identity, and diminished interactions between urban elements and the river.

Reconsidering the position of the city center and re-establishing its connection with the river could serve as an effective strategy for revitalizing Dezful's historical identity and strengthening the city's spatial organization (Table 3).

Conflict of Interest

The authors declare that there was no conflict for them in conducting this research.

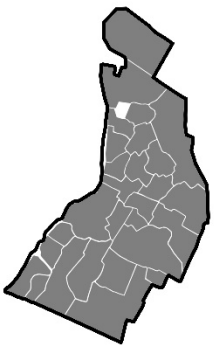
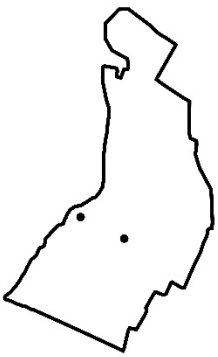
Table 2: Evolution of the relationship between the river and the city center of Dezful

Historical period	River Role	Location of the city center relative to the river	Physical connectivity level
Early core/Sassanian	Defensive Factor, Bridge Control	Very close	Very high
Islamic period	Agricultural Infrastructure and Qomesh	The Islamic city center rivals the historical center	High
Safavid to Qajar	Supporter of Agriculture, Regulating the Location of Neighborhoods, and Climate	Multiple centers and spread along the Qomash.	Moderate
Early Pahlavi period	Loss of Qomesh, River to Margin	The new center is not connected to the river	Low
Contemporary	Recreational and Environmental Function	The river has become the recreational edge of the city	Moderate

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Table 3. The Evolution of Centrality, Sub Wholes, Structure, and Territory in Dezful.

Territory	Sub-wholes	Structure	Centrality
			

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HOW TO CITE THIS ARTICLE

Mahan, A., Rouhanian, R., Parastar Harami, A., Hamidifard, M., & Chadeganipour, M. (2025). An Analytical Study on the Historical Transformation of the River's Role in the Formation of Dezful's City Center. *Journal of Revitalization School, 3*(7), 56-65.

DOI: https://doi.org/10.22034/3.7.6

URL: https://jors-sj.com/article-1-79-en.html

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